Design Methodologies

[Preece Chap 17-18; Newman Chap 6]

## Engineering Model versus User-Task Model

The engineering model gives access to all functionality, often at its lowest level. While this may be an important step in the development of a product because of its usefulness in debugging, this is NOT the interface the user wants to see.
The user-task model provides "hooks" into a system based on the user's conception of what tasks are being done.
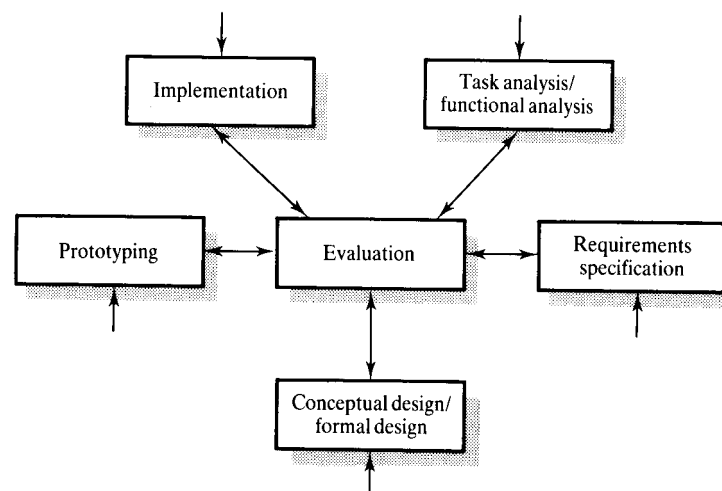See Gentner & Grudin, 1996. [Included]

Development Models

These methods are not mutually exclusive! There is most often a strong overlap between the underlying principles of each method.
All methods are based on the waterfall model of software development.
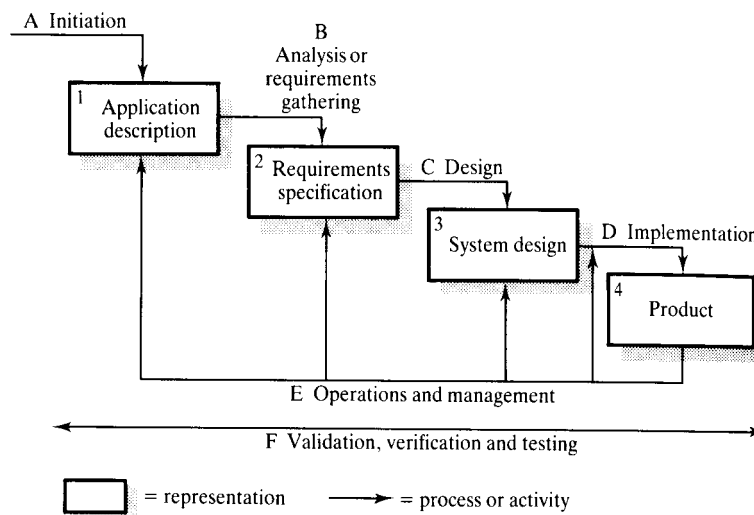
The star model (from Hix et al.)

User-Centered Design

Starting with the user, work down towards a functional specification of the application.
This can also be thought of as a top-down methodology.

Evaluation-Centered Design

Pioneered by Hix et al., based on the principle of behavioral versus constructional development.
Behavioral design has to do with the user's perspective.
Constructional design has to do with the implementer's perspective.
Both of these are important — designing interfaces or components that cannot be built is useless.

DEVELOPMENT OF THE USER INTERFACE	
DEVELOPMENT OF THE INTERACTION COMPONENT	DEVELOPMENT OF THE INTERFACE SOFTWARE

The behavioral and the constructional elements may occur simultaneously (but this is not required) in a give-and-take fashion resulting in a usable, implementable system.
The interface design element is developed in an iterative cycle of design-evaluation.

	Behavioral	Constructional
What is being developed?	Interaction component of interface	Interface software (to support interaction)
What view is adopted?	View of the user	View of the system
What is described?	User actions, perceptions, and tasks	System actions in response to what the user does
What is involved?	Human factors, scenarios, detailed representations, usability specifications, evaluation	Algorithms, callbacks, data structures, widgets, programming
The locale	Where interaction designers and evaluators do their work	Where interface software implementers do their work
The test	Procedures performed by the user	Procedures performed by the system

Work (Task)-Centered Design

In this case, the design is centered on the work being performed by people using the application (and its associated interface). Methods often include group work observation, team analysis, etc.
Highly dependent on conceptual models but more difficult when groups are involved rather than single users. How do we design an application so that all its users have the same expectations?

Participatory Design

The basic premise of participatory design is to include the user in the design process. The end users of a system (or a representative set of them) are included on the design team and are asked to guide the design in terms of the organization of the system, the work it supports, and individual needs and requirements.